

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 746 108 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
11.02.1998 Bulletin 1998/07

(51) Int Cl.⁶: **H03K 23/50**, H03K 21/40,
 H03K 21/16

(43) Date of publication A2:
04.12.1996 Bulletin 1996/49

(21) Application number: **96303243.8**

(22) Date of filing: **09.05.1996**

(84) Designated Contracting States:
CH DE ES FR GB IT LI

(30) Priority: **24.05.1995 US 449461**

(71) Applicant: **HE HOLDINGS, INC. dba HUGHES
 ELECTRONICS**
Los Angeles, California 90045 (US)

(72) Inventors:

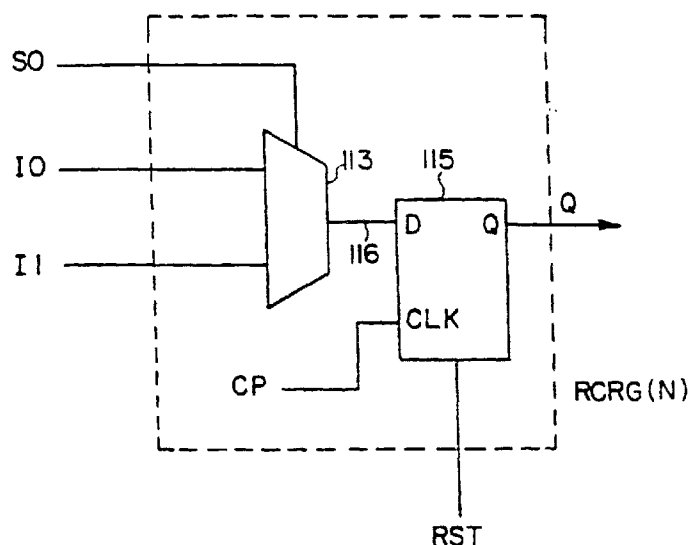
- **Chinn, Gregson D.**
Oro Valley, AZ 85737 (US)
- **Oda, Dwight N.**
Santa Margarita, CA 92688 (US)

(74) Representative: **Jackson, Richard Eric**
Carpmaels & Ransford,
43 Bloomsbury Square
London WC1A 2RA (GB)

(54) High-speed synchronous counter circuitry

(57) Digital counter register stages RCRG(N) are constructed as two-to-one mux registers, each employing a multiplexer stage (113) having first, second, and third inputs (S0, I0, I1) and an output (116) connected to the switching signal input (D) of a D-type flip-flop (115), whose Q output comprises a first input (I1) to the multi-

plexer stage (113). An inverter buffer (19) is associated with each register stage (RCRG(N)) and has an input connected to the output (Q) of said D-type flip-flop (115) and an output connected to the second input (I0) of the multiplexer stage (RCRG(N)) and fed forward to a NOR gate (21) associated with each subsequent register stage (RCRG(N)).

FIG. 2**EP 0 746 108 A3**



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 96 30 3243

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 4 761 801 A (UNDERWOOD GEORGE D) * column 7, line 47-56; figure 1; table 1 *	1-3,6,7	H03K23/50 H03K21/40 H03K21/16
Y	* column 3, line 24-42 * ---	4,5,8,9	
X	EP 0 343 838 A (RAYTHEON CO) * abstract; figures 1,4 * ---	1-3,6,7	
D,Y	US 5 062 126 A (RADYS RAYMOND G) * figure 2 * -----	4,5,8,9	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			H03K
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 6 November 1997	Examiner Brown, J
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>			

EPF FORM 1503 03 82 (P04CC01)